Claims

- [c1] 1. A method of manufacturing an x-ray detector sensor array for use with CT systems, the method comprising the steps of:

 determining a high density material capable of changing in temperature upon absorption of radiation;

 forming an absorption array having a plurality of absorption cells from the high density material; and coupling a thermal sensing array having a plurality of thermal sensing cells to the absorption array.
- [c2] 2. The method of claim 1 wherein the step of forming an absorption array includes the step of forming a sheet of the high density material.
- [c3] 3. The method of claim 2 further comprising the step of etching the sheet to form a pixilated absorption array having a plurality of pixilated absorption cells.
- [c4] 4. The method of claim 2 further comprising the step of laser-cutting the sheet to form a pixilated absorption array having a plurality of pixilated absorption cells.
- [05] 5. The method of claim 1 wherein the step of forming an absorption array includes the step of columnating the

high density material.

- [c6] 6. The method of claim 1 wherein the step of forming an absorption array includes the steps of sputtering the high density material; and one of: etching the high density material; laser-cutting the high density material; and masking the high density material.
- [c7] 7. A CT detector array manufacturing process comprising the steps of:
 shaping a bulk of high density material into a block;
 pixilating the block to form a plurality of x-ray absorption component cells; and
 affixing a plurality of thermal sensing cells formed in an array to the plurality of x-ray absorption component cells.
- [08] 8. The process of claim 7 wherein the step of pixilating includes the step of laser cutting the block along one dimension so as to form the plurality of x-ray absorption component cells.
- [c9] 9. The process of claim 8 further comprising the step of laser cutting the block along another dimension perpendicular to the one dimension.
- [c10] 10. The process of claim 7 wherein the high density ma-

terial is configured to experience detectable thermal changes upon reception of x-rays.

- [c11] 11. The process of claim 10 wherein the high density material is further configured to experience thermal changes proportionally to the amount of x-rays received.
- [c12] 12. The process of claim 11 wherein the plurality of thermal sensing cells is configured to detect thermal changes in the plurality of x-ray absorption component cells.
- [c13] 13. The process of claim 7 wherein the block is formed of lead and the plurality of thermal sensing cells is further configured to output electrical signals indicative of x-ray absorption by the plurality of x-ray absorption component cells.
- [c14] 14. A method of CT detector manufacture, the method comprising the steps of:
 forming a sheet of x-ray absorption material;
 etching the sheet such that an array of absorption components is formed; and
 coupling an array of thermal sensing components to the array of absorption components.
- [c15] 15. The method of claim 14 wherein the step of etching includes laser cutting the sheet along two dimensions.

- [c16] 16. The method of claim 14 wherein the step of etching includes ion beam milling the sheet to form the array of absorption components.
- 17. The method of claim 14 wherein the step of etching includes: applying a mask to the sheet; submersing the sheet in a chemical etchant; removing the sheet from the chemical etchant; and allowing the etchant to dry.

[c17]

- [c18] 18. The method of claim 14 wherein the step of etching includes: applying a layer of plasma to the sheet; loading the sheet in a vacuum chamber; creating a vacuum in the chamber; filling the chamber with a reactive gas; creating a frequency field in the chamber; energizing the layer of plasma to an energized state; allowing the energized plasma to convert unprotected portions of the sheet to a number of volatile components; and removing the volatile components with a vacuum.
- [c19] 19. The method of claim 14 wherein the x-ray absorption material includes lead.

[c20] 20. The method of claim 14 wherein the array of thermal sensing components is configured to detect temperature changes in the array of x-ray absorption components.